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3. DDT is suitable for use as an insecticide only when properly formulated for that purpose.

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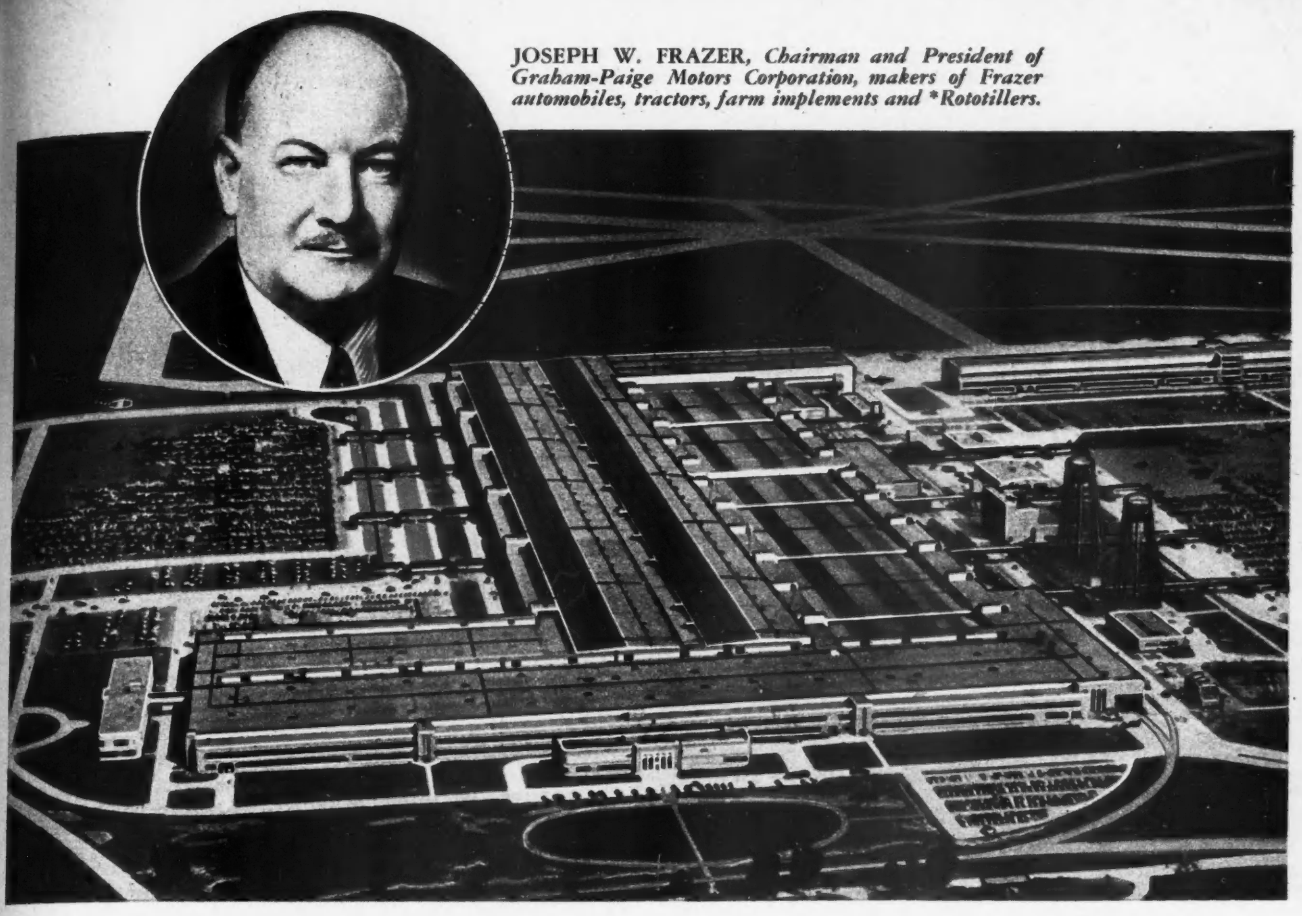

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GRAHAM-PAIGE MOTORS CORPORATION, WILLOW RUN, MICHIGAN

FARM EQUIPMENT DIVISION

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Keep watching the news from GRAHAM-PAIGE!

LETTERS TO THE EDITOR

Two Crop Tree

Gentlemen:

As a reader of the AMERICAN FRUIT GROWER, I am sending under separate cover a phenomenon. You will find apples from a Wilson Red June tree of about 16 years of age. This tree bore 5 bushels of apples in June and July. It then defoliated. It came into bloom again August 10 and about 2 bushels of apples were picked October 17. The photograph I am sending was taken August 1.

What about an everbearing apple tree?

Blytheville, Ark. W. S. Langdon

Pictured above is Grower Langdon with his Wilson Red June apple tree. To the right are the second crop apples received by AMERICAN FRUIT GROWER.

A second crop of blossoms on fruit trees was quite common this year but not often has such a crop developed as is shown in Grower Langdon's orchard. The weather undoubtedly caused an early development of fruit buds, and then a dry period was followed by wet weather or other conditions which caused the blossoms to open and set a second crop of apples. Many fruit trees showed this phenomenon in various parts of the country this year.

Sometimes flowers come double under such conditions. It will probably affect the crop next year, but otherwise will not be injurious to the tree.—Editor.

Troubles Galore

Dear Sirs:

I have a few questions and I am sure you can help me. I have a Concord grape. It has a few tiny grapes on it in the spring but they soon dry up. What can be wrong? There are no other grapes near them.

I also have a Blue Damson plum. The plums fall off. I was told to put nails in the tree as it needed iron. I did not believe that. I also have several Elberta peach trees. One oozes the sap from every inch of it from the top down. This worries me. The peaches fall off.

The other peach trees have what I was told is the brown rot. We never get any fruit from any of these trees. What can I do to help these trees?

Bridgeport, Ill. Mrs. H. B.

Grapes may dry up when still small due to mildew or black rot which attacks them in the blossom stage and soon after. 4-6-100 bordeaux mixture is the usual remedy. Posts, trellises, and canes should be thoroughly sprayed.

Plums may fall from curculio or occasionally from brown rot. Spray when shucks are splitting or falling with fixed copper—1½ lbs., lead arsenate—2½ lbs., hydrated lime 3 lbs. and water to make 100 gallons. Smaller amounts can be used in these proportions. Nails driven in trees are of no value.

The peaches would seem to be affected with shothole borer or bark beetle. They attack weak trees or trees near a woods or brush pile. Keeping the trees in vigorous condition by fertilizing or manuring and good orchard sanitation are the chief preventatives. Occasionally gum will exude over a tree from winter injury or other causes, but there would be no particular treatment for trees in this condition. Brown rot is a common trouble with peach fruits and should be avoided by thorough and timely spraying with flotation or wettable sulfur applied according to directions on the package. Better cultural conditions and spraying should improve this situation.—Ed.

Money From Boysenberries

Dear Sirs:

Boysenberries, fresh from the vine, are incomparable. They are better than raspberries because there are so many more of them in an equal space. They have a delicate raspberry flavor and a deep ruby color. They are like blackberries of the finest quality but superior because of fewer and smaller seeds.

A boysenberry field where the vines are cultivated cleanly and trained neatly is a grand possession, not only for home use but for bringing in worthwhile cash returns.

When the fruit was ripe in such a field near my home, I went to buy some of it. I knocked confidently at the door of the house where the owners lived. The lady of the family came to the door. I had empty quart boxes in my hand for I planned to help with the gathering.

"Can you let me have some berries this morning?" I asked, never dreaming of a negative reply. "I'll be glad to pick them and I've brought my own boxes."

"No, I can't let you have any at all," was the reply. "I have customers who buy all I have every year."

"But couldn't you let me have just one quart or pint?" I was reduced to begging. "I have a guest who loves boysenberries better than anything. If I could buy enough to flavor ice cream I would appreciate it." The vines were simply laden with enormous berries.

"No, I tell you, I can't sell you any. There is one woman who buys a dozen gallons a year. They are all taken."

I left crestfallen and quite a bit angry. More at myself than at the owners of the boysenberries. I could have had such fruit for I had plenty of good land.

In view of the ready sale for unlimited quantities, in 1944 the price was 45 cents a quart, and boysenberries were no drug on the market, a plantation of even medium proportions is a paying proposition. Butter

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CALENDAR OF COMING MEETINGS and EXHIBITS

Dec. 3—Ohio Fruit School—A special school for fruit growers at the Horticulture Building, Ohio State University, Columbus during the week of December 3.—Frank H. Beach, Sec'y, Columbus.

Dec. 3-5—The Annual Meeting of the New Jersey State Horticultural Society will be held at the Claridge Hotel, Atlantic City, New Jersey.—Arthur J. Farley, Sec'y, New Brunswick.

Dec. 3-5—Washington State Horticultural Association Annual Meeting will be held in Wenatchee.—John C. Snyder, Sec'y-Treas., Pullman.

Dec. 4-6—The 50th Annual Meeting of the Virginia State Horticultural Society will be held at Hotel Roanoke, Roanoke, Virginia.—W. S. Campfield, Sec'y, Staunton.

Dec. 4-6—The 75th Annual Meeting of the Michigan State Horticultural Society will be held in the Civic Auditorium at Grand Rapids.—H. D. Hootman, Sec'y, East Lansing.

Dec. 6-7—The Annual Meeting of the Oregon State Horticultural Society will be held at Medford.—O. T. McWhorter, Sec'y, Corvallis.

Dec. 7-8—The Montana Horticultural Society will meet at Orchard Homes, Missoula.—George L. Knight, Sec'y, Missoula.

Dec. 10-12—The 90th Annual Meeting of the Illinois State Horticultural Society will be held at the Abraham Lincoln Hotel, Springfield.—C. C. Mast, Sec'y, Quincy.

Dec. 11-12—The 55th Annual Meeting of the Connecticut Pomological Society will be held at Hotel Bond, Hartford.—H. C. Miles, Sec'y, Milford.

Dec. 12-14—Annual Meeting of the Indiana Horticultural Society at Severin Hotel, Indianapolis.—K. I. Fawcett, Sec'y, Lafayette.

Dec. 18-19—Arkansas State Horticultural Society Annual Meeting at Rogers.—Thomas Rothrock, Sec'y, Springdale.

Jan. 3-4—48th Annual Meeting of the Maryland State Horticultural Society at Hagerstown.—A. F. Vierheller, Sec'y, College Park.

Jan. 9-10—Annual Meeting of the Massachusetts Fruit Growers Association in Worcester.—W. R. Cole, Sec'y, Amherst.

Jan. 16-17—Annual Convention of the Tennessee State Horticultural Society at the New Southern Hotel, Jackson.—G. M. Bentley, Sec'y-Treas., Knoxville.

Jan. 16-18—91st Annual Meeting of the New York State Horticultural Society at Convention Hall, Rochester.—Roy P. McPherson, Sec'y, Le Roy.

Jan. 22—Annual Meeting of Vermont State Horticultural Society in the Memorial Auditorium at Burlington.—C. H. Blasberg, Sec'y, Burlington.

Jan. 22-24—Annual Meeting of the Pennsylvania State Horticultural Association in the Chestnut Street Auditorium at Harrisburg.—John U. Ruef, Sec'y, State College.

Jan. 22-24—Annual Meeting of the Maine Pomological Society in conjunction with an agricultural trade show at Lewistown.—J. H. Waring, Professor of Horticulture, Orono.

Jan. 29-30—The Annual meeting of the New Hampshire Horticultural Society at the Carpenter Hotel, Manchester.—A. L. French, Sec'y, Henniker.

(Continued on page 26)

It's the "Friend" EXTRA MARGIN OF RELIABILITY *that Counts Most*

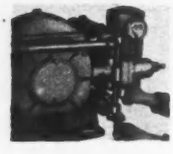
In Many Ways--

You'll have More Satisfaction and Less Trouble with a "Friend"

For Instance:

No Bearing Troubles, as there is not one plain bearing on a "Friend" pump. All roller bearings, mostly Timkens—and of generous size.

"Instant-Clean" Valves that slide right out for cleaning—cage, ball and seat. Just loosen one hex-head screw. The valve is on a flat surface—doesn't stick.



You Never Spray with a Leaky Pump. A very slight turn on the adjusting screw stops a leak—not necessary to take the pump apart and re-pack it.

The "Last Word" in Simplicity: The "Friend" pump has only ½ to ⅓ as many moving parts as other pumps built for high-pressure spraying.

Thousands of growers tell you: "My 'Friend' Sprayer is the most reliable and satisfactory machine I have ever owned."

You use your own judgment, of course—

—when you buy a machine for your orchard. But the experiences of other growers are interesting—if they have used several different makes of sprayers, as these growers have (names on request):

"The 'Friend' is simpler to operate, easier of access to working parts, and is generally a more satisfactory machine." . . . "Before I bought the 'Friend' Sprayer I had renewals and repackings every year. In 5 years I've been using the 'Friend', I have not had to replace a plunger or even the pump packings. No upkeep expense whatever.". . . "I consider the 'Friend' in every respect the best sprayer; during 7 years the only parts renewed were controller valve seats and a valve ball. From appearances it will be another year before the original packing needs replacing.". . . "In 20 years of fruit growing, I've had the least trouble during the past 4 years, using the 'Friend'. No other sprayer has given such service. When a 'Friend's' pump cylinder starts to leak, instead of total removal of parts and renewal of the packing, a quarter turn on the adjusting screw stops it."

Cutunders, Tractor-Trailers, Truck Sprayers, and other styles—all sizes. Pressures up to 1,000 lb.

FRIEND MANUFACTURING CO.

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Dusters as Reliable as "Friend" Sprayers.

Sizers and Cleaners for every requirement.

Easiest to Maintain in Working Order--
Fewest Moving Parts
"FRIEND"

PRICE CEILINGS SET BACK

EVER since this country embarked upon the price control system for fresh produce in 1943, it has been a question whether such regulations have been harmful or beneficial to fruit growers. Government price control became a new part of our economy during the war period. This unprecedented action was certain to have a profound reaction upon the marketing of fruits.

Now that the war is over and we are on the road to a peacetime economy, is it wise to continue such emergency measures? Before answering this question, it might be well to examine the influence of price regulations upon the grading, packing and marketing of fruits, all of which definitely affect both grower and consumer.

Perhaps the most conspicuous aspect of price fixing has been the lowering of quality of pack. There was nothing in the price regulations which rewarded the grower for maintaining a high standard of quality and properly packaged fruit. The grower could not get any more money for such fruit than his competitor who mixed culls with fancy fruit in a jumbled pack. Furthermore, packaging materials were scarce and sometimes impossible to get and so it was not difficult to follow a war trend and, like O.P.A., forget that both quality and price determine values for the consumer.

The answer, then, is that price ceilings as now enforced, have undermined the fruit industry largely by destroying consumer confidence which it has taken years to build.

It is time for the fruit grower to pick up the loose ends of grading, packing and packaging where he left them during the war—to regain consumer confidence and, at the same time, cash in on the merchandising opportunities offered for his products. When fruits again become abundant and prices are not so attractive, buyers will go to those growers who have attempted to keep the quality of their pack on par with

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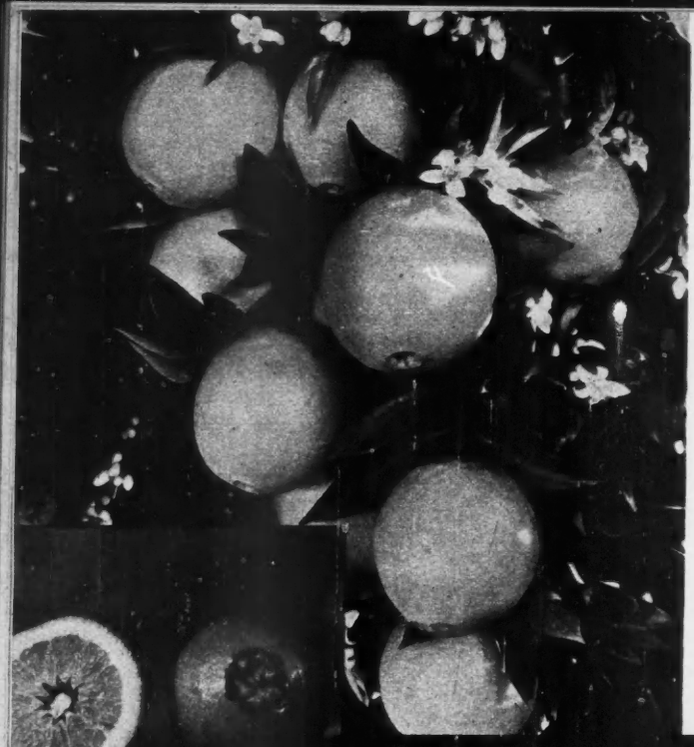
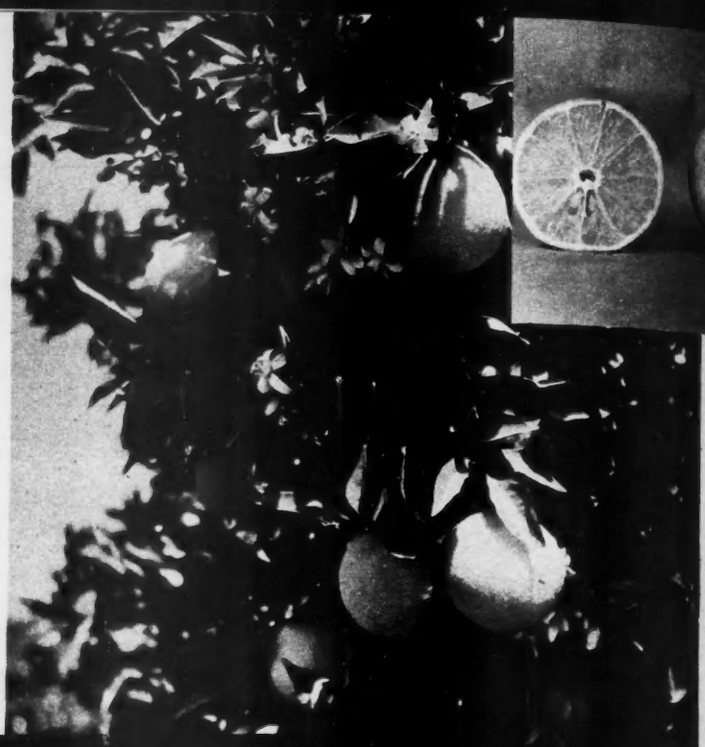




THE MAJOR CITRUS FRUIT VARIETIES

THEIR CHARACTERISTICS AND IDENTIFICATION

By ROBERT W. HODGSON
University of California

Above—The fruit of the Washington Navel orange is large, seedless and characterized by deep color, rich flavor, navel in apex and early maturity.

Above—The Valencia orange is a fruit of medium size, commercially seedless, characterized by high acidity and lateness of maturity; tree, vigorous

Planting Tendencies

RECENT surveys indicate that during the war period plantings of citrus fruits were heaviest in Florida, followed by Texas, California and Arizona. In Florida and Texas only, however, have war-time plantings been large enough to add significantly to the total acreage. In California a considerable portion of the trees set out has consisted of replacements. Comparatively little planting has occurred in Arizona.

Much the greater part of the new plantings—probably not less than 75 percent of the total—has consisted of orange trees, followed by grapefruit and lemons. Plantings of mandarins and limes have been very small.

In Florida, where the bulk of the new plantings have been made, the latest statistics indicate that oranges have comprised in excess of 80 percent of the total, grapefruit about 15 percent and the balance mandarins and limes. In Texas oranges account for something more than half of the new plantings, the balance consisting almost entirely of grapefruit. In California new plantings have been about equally divided between oranges and lemons and in Arizona new plantings have consisted mainly of oranges.

The varietal situation in Florida with respect to oranges shows a pronounced preference for the late varieties, Valencia and Lue Gim Gong, followed by a preference for the early varieties, Hamlin and Parson Brown. Of mid-season varieties Jaffa and Pineapple have been the most planted. With respect to grapefruit the preference is still for Marsh Seedless with its pink-fleshed budsport variety, Thompson, a strong second. Of mandarins or mandarin-like fruits only Temple and Dancy tangerine have been planted to any extent and Persian is virtually the only lime which has been planted in some years.

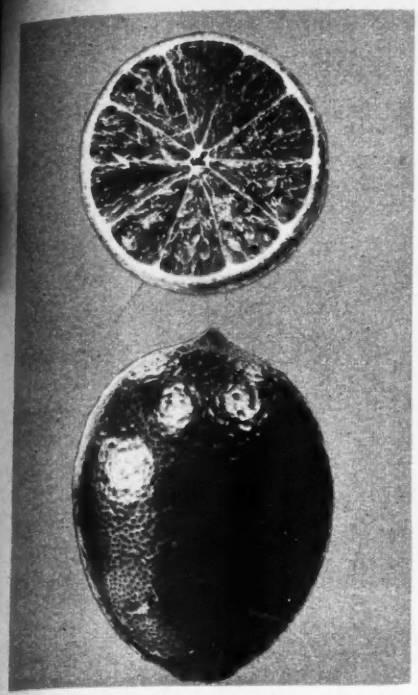
In Texas Valencia is now much the most popular orange variety. Marsh and Ruby or Redblush, a budsport from Thompson, comprise the grapefruit varieties most planted in recent years.

Valencia is the orange variety most planted in California and Arizona, with a few Washington Navels also planted. The lemon varieties most planted in California in recent years consist of vigorous-growing, heavy-foliated selections or "strains" of the Eureka and Villafranca varieties, of which at least a dozen have been propagated on a commercial scale.

Varietal Characteristics and Identification

The statement seems warranted in general that with respect to both fruit and tree characters citrus fruit varieties exhibit much greater similarities and far fewer distinctive differences than exist in the case of any other fruits of outstanding economic importance. On the basis of fruit characters alone there are numerous orange, grapefruit and lemon varieties, including some of the most important, which are so similar as to render it impossible to accurately identify them or to provide descriptions from which they may be identified. Moreover, the situation is not greatly improved by the availability of tree characters as well. The fact is that most of the varieties of greatest economic importance are distinguished with accuracy only on the basis of such differences as season of maturity, seed content, depth of rind color, rind texture, flavor, or color of flesh or juice.

The problem is rendered all the more difficult because of the pronounced effects on fruit characters of environmental factors—notably climate and rootstocks. These effects may be so pronounced as to cause differences within a given variety great-



The Persian or Tahiti is virtually the only lime which has been planted in some years.

er than those which normally exist between varieties in a given environment. When one considers the very wide range of conditions under which citrus fruits are grown commercially in the United States it may help to understand the difficulties presented in varietal description and identification.

Oranges

Valencia—Fruit medium in size, commercially seedless (0 to 6 or 7 seeds), characterized by high acidity and lateness of maturity. Tree vigorous and usually exhibits tendency to alternate bearing. It is impossible to accurately distinguish Lue Gim Gong from Valencia.

Hamlin—Fruit small, commercially seedless, and characterized by good color, smooth rind, sweetness and earliness of maturity. Tree not especially vigorous.

Parson Brown—Fruit medium-large, seedy and characterized by low acidity and earliness of maturity. Tree vigorous and a good bearer.

Jaffa—Fruit medium in size, moderately seedy and mid-season in maturity. Tree vigorous. Not the true Palestine Jaffa (Shamouti).

Pineapple—Fruit small to medium in size, seedy, and characterized by good color, smooth rind, sweetness and mid-season maturity. Tree lacking in vigor but good bearer.

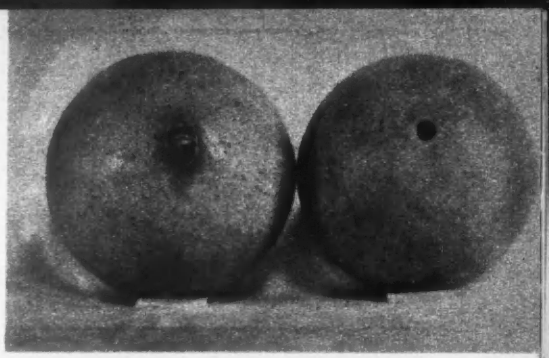
Washington Navel—Fruit large, seedless and characterized by deep color, rich flavor, crispness of flesh texture, presence of navel in apex, and earliness of maturity. Tree not especially vigorous and sometimes a poor bearer.

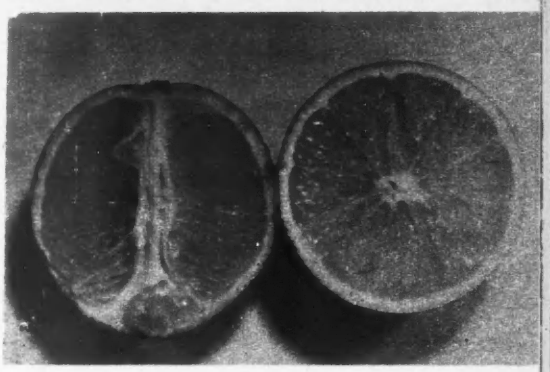
Grapefruit

Marsh Seedless—Fruit characterized by commercial seedlessness, acidity and lateness of maturity.

Thompson (Pink Marsh)—Similar to Marsh except flesh light pink.

Ruby or Redblush—Similar to Thompson except flesh deep pink and pink blush on rind.



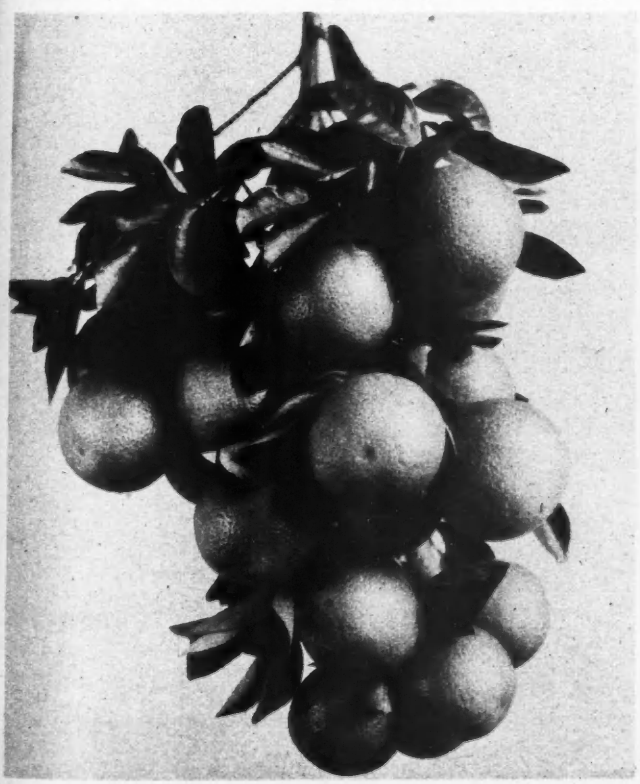


A new Florida orange, the Dream Navel, has orange-red rind and none to few seeds.

Lemons

None of the lemon varieties grown commercially exhibit fruit characters by means of which they can be identified. They differ only in tree characteristics, such as vigor of growth, density of foliage, thorniness and seasonal distribution of the crop. Eureka selections tend to be more ever-bearing and less vigorous and less thorny than Villafranca "strains."

The oblate-roundish fruit of the Marsh Seedless grapefruit is characterized by commercial seedlessness, acidity and late maturity.



Selections of the Eureka lemon tend to be more ever-bearing and less vigorous and less thorny than Villafranca lemon "strains".

PROPAGATING CITRUS TREES

By H. HAROLD HUME
PROVOST, COLLEGE OF AGRICULTURE
UNIVERSITY OF FLORIDA

When the seedling is very large at time of budding the top is sometimes "lopped" when the bud starts, by cutting it partially through.

Group of photographs at lower left shows the initial steps in the budding process. A—Making the vertical cut; the cutting stroke is usually downward but may be made upward if desired. B—Making the cross cut at the bottom of the vertical slit; note tilt of knife blade. C—Cutting the bud shield from the bud stock.

Group of photographs at lower right shows the final steps in the budding process. D—Inserting bud shield in stock; bud is being held on knife blade. E—Bud shield in place in stock; note that it is entirely within the flaps of bark. F—A closer view of the shield bud in place. G—Taping the bud; taping is started at the bottom in inverted "T" budding and at the top in erect "T" budding. H—Taping finished; end of tape is brought back on tape wraps so that it will stick. — Photographs from Florida Agricultural Experiment Station.

IN some citrus districts there are still many old plantings made up of seedling orange trees that bear fruit remarkable for uniformity and quality, both of which desirable characters are uncommon in fruit borne by seedling fruit trees of almost any other kind. This is so because their seeds are peculiar and different from seeds of most other fruits. Each orange seed is usually capable of producing more than one plant, and where several are produced, all of them or all but one have developed as direct bud offsets from the mother plant. This accounts in large measure for the uniformity of fruits produced by old seedling groves.

However, it was recognized long ago that there are certain advantages in budded trees. They come into bearing earlier, do not usually grow so tall and eliminate such variations as sometimes develop when seedlings are grown from seeds of different trees. In the last fifty years or so the planting of seedlings has almost disappeared. Citrus trees, orange, grapefruit, tangerine, lemon, lime and kumquat are propagated vegetatively rather than by seed. Stocks used are sour orange, rough lemon and sweet orange for the most part, though such special stocks as trifoliate (Poncirus) grapefruit and Cleopatra tangerine are used also, to a limited extent, for special locations and particular varieties.

Seeds from which stocks are grown are extracted from the fruit by squeezing or reaming them out with some of the pulp, washed free from pulp and juice, dried off slightly and planted quite thickly in rows in specially prepared seed beds much as garden beans are planted. Planting is done very soon after the seeds are removed from the fruit.

Citrus seeds must not be allowed to dry out, for if this takes place the tiny plants they contain are broken away from the cotyledons and they are worthless. If it is necessary to hold them for some time they should be packed in pulverized charcoal in tight containers. Usually enough seed is planted to provide twice as many seedlings as are needed to give enough for selecting out the best. In the seed bed the seedlings are irrigated as often as necessary, usually from an overhead system, fertilized from time to time to secure good growth and sprayed with a fungicide to keep down any diseases that may attack them. They remain in the seed bed one or two growing seasons, then they are taken up, graded to good sizes, cut back and planted in the nursery rows. These rows are spaced four feet apart and the seedlings are set fifteen to sixteen inches apart in the rows. Here they are grown one or two seasons, cultivated to keep them free from weeds and fertilized with commercial fertilizer to secure good growth. It is always wise to grow stocks to goodly size, one half inch or more in diameter before budding them. It is always easier to produce a good nursery tree by growing a good stock and budding it than it is to bud small seedlings and try to grow a well-developed root system and a budded top at the same time.

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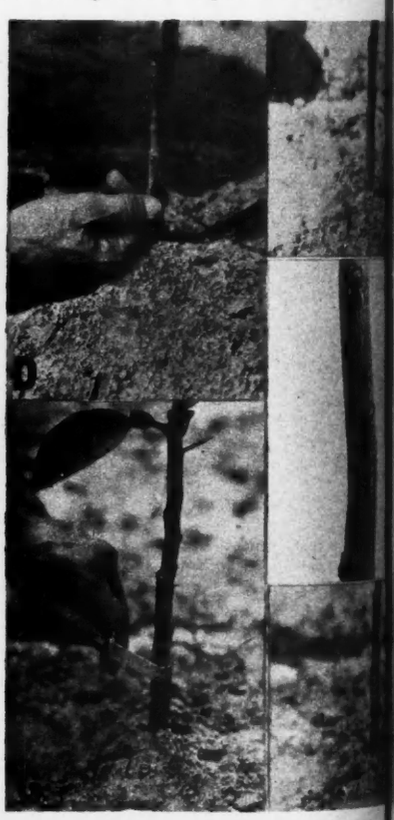
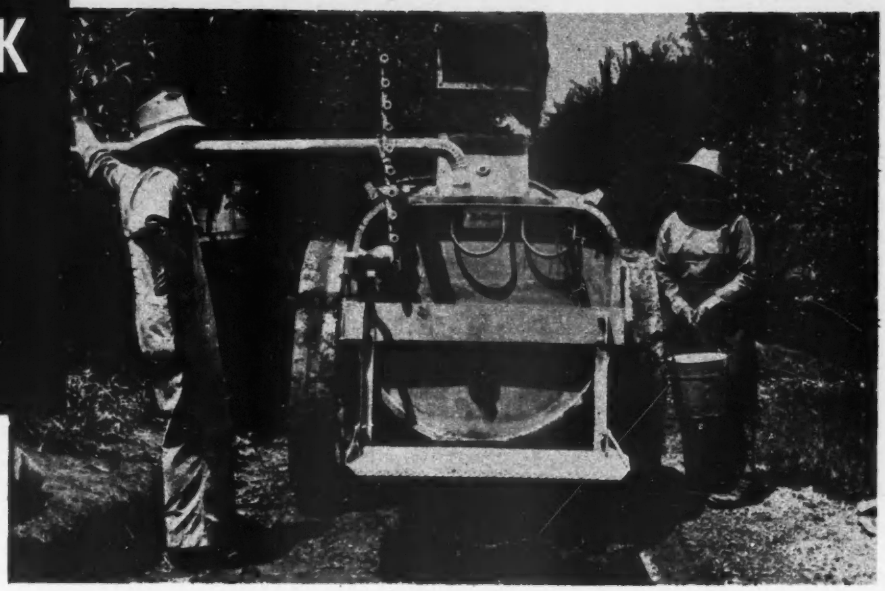


OEING THE MARK IN A DIFFICULT YEAR

By T. H. PARKS
EXTENSION ENTOMOLOGIST
OHIO STATE UNIVERSITY



The 35-acre orchard of Ralph Ladd took first place this year in the apple check-up of the Ohio Spray Service with a score of 97.38 percent clean fruit. Ladd occupied third place in 1944. He shares with his sister credit for the excellent performance of the Athens County orchard.

THE season of 1945 brought the lowest quantity, and the poorest quality of fruit in Ohio apple orchards since the apple check-up was started by representatives of the Ohio Spray Service 18 years ago. Reasons: frost, apple scab and worms.

The apple trees bloomed abnormally early and well over the entire state with indications of a heavy crop in prospect. A series of cold nights occurred after bloom with the result that much of the crop in southern Ohio was lost late in April, and that in northern and central counties early in May. The cold spell was followed in northern counties by such widespread dropping of little fruits that further spraying in some orchards was abandoned after the preblossom scab sprays had been applied. Most orchards retained less than 20% of a crop, although a scant few had more than 25%. None came through with a full crop as anticipated the first of the season.

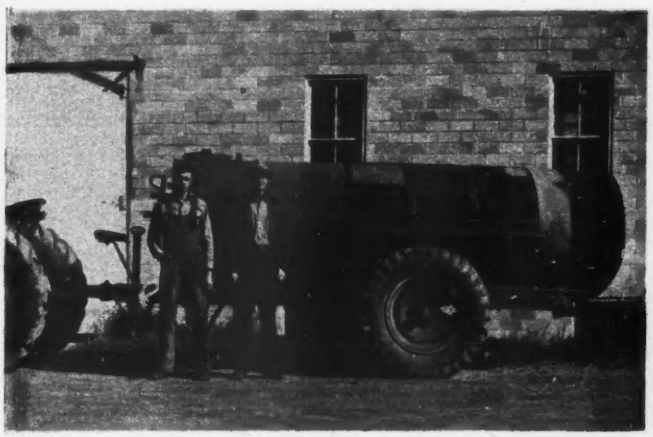
Little, or no thinning of fruits was required in June, or July and those fruits that survived the frost were frequently russeted with various shaped frost-patterns. Some frost injury took the form of crescent-shaped, sunken areas near the calyx. In northeastern Ohio rain came on 34 days during the period between April 20 and June 20 with the result that apple scab infection of leaves and fruits occurred commonly. The few apples that were present on the trees became easy prey for codling moth worms, which hatched throughout the summer months and in particularly high volume during late August and early September. These added their contribution to the blemishes already present from apple scab and frost. In August and September late scab infection developed on some varieties, where the disease had not previously marred the fruits. This all added up to disappointment for many orchardists, who previously had records of producing clean fruit.

Emery Leow of Oak Harbor, Ohio, received a score of 92.50 percent in the apple check-up.

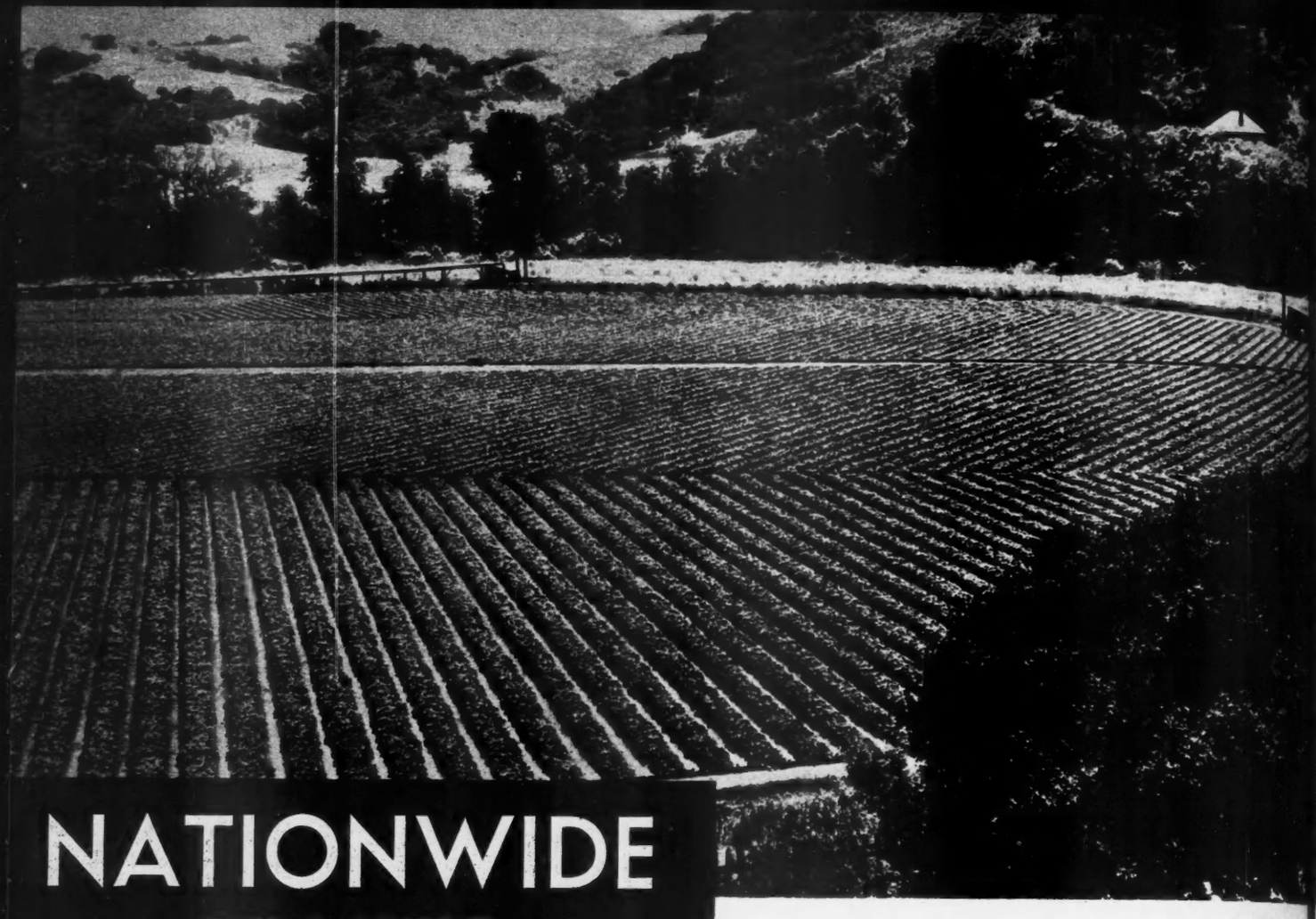
When a representative of the Ohio Fruit Spray Service visited these orchards at harvest-time he was frequently met by an apologetic owner, or foreman, who related the difficulties encountered during the season, and who was none too proud of the results even though a full quota of sprays had been applied. Some bad guesses had been made as to the *amount of fruit* that had been left by the frosts with the result that neglect of spraying in June accounted for failure to control scab and worms. Some growers were unable to get fixed nicotine to combat the second brood of worms, and depended upon less effective materials, which resulted in too many codling moth worm "stings," or fallen apples carrying

(Continued on page 23)

Ernest Holdren and his son, Bob, of Little Hocking, examine some of the clean fruit that merited them third place in the apple check-up.



With this sprayer, Mr. Holdren and his son did all the spraying of their 30-acre orchard at the western edge of Washington County.



NATIONWIDE FRUITS

Strawberry gardens at the foot of San Juan Grade near Monterey, California, where cultivation of land adds to the picturesqueness of the landscape as well as produces something to appeal to the sense of taste.—Photo from Ewing Galloway, N.Y.

APPLES

Old Orchard Yields Good Crops

A run-down apple orchard of 6,000 bearing trees in 1937 on badly eroded land has been made to yield good, paying crops by proper orchard management which included the best methods of pruning, spraying, and fertilization.

Mrs. A. G. Click, owner of the Highland Orchard at Elkin, North Carolina, applied to the Extension Service at State College and the TVA for help in renovating the orchard. The land had grown up in broom sedge and the trees were dying at the top.

TVA phosphate and lime were applied to the land and the area was seeded to lespedeza. H. R. Niswonger, in charge of Extension horticulture, outlined a plan for pruning, spraying, and fertilization. A check plot of one-half acre was left without treatment of lime and phosphate, but the trees were pruned and sprayed as in the remainder of the orchard.

"Today the trees in the check plot are only one half as large as those on the treated area and they drop their fruit before maturity," Niswonger says. "Many of the trees have died since 1937.

"On the treated area, from 1938 to the present time, the orchard has produced an average of 16,000 bushels of apples a year, with a maximum production of 25,000 bushels. This year there were only about 15,000 bushels of fruit because of a late freeze. Certain areas in the orchard are not favorably located as to air drainage and hence are more subject to cold damage."

PEACHES

Controlling Soil Moisture

Soil moisture determines the size and quality of peaches, Dr. R. D. Anthony, research pomologist at the Pennsylvania State College, reminded growers recently. Tons of water are required to produce each bushel, but heavy rains just before harvest, a condition which has been common in south central Pennsylvania this year, may result in poorly flavored fruit. On the other hand, a mid-summer drought, such as occurred last year, limits the size of the peaches.

Growers are learning to control available soil moisture in their orchards by growing suitable cover crops and by properly timed cultivation, Dr. Anthony said. A grass-legume mixture seeded in July or even a heavy crop of weeds will remove large quantities of water from the soil before peach harvest. If the season is dry, summer cultivation to retard the growth of soil covers and to kill weeds may be necessary to conserve moisture.

A mixture of crimson clover, vetch, rye, and millet has been found a satisfactory summer seeding for peach orchards in recent years. The rye and millet shade the tiny clover and vetch plants until they get a start. When disked down in the late spring, this combination provides an abundance of trashy mulch and the clover and vetch aid especially in building up the soil nitrogen.

The chief advantage of such a surface mulch, soils men have found, is in preventing soil erosion by breaking the force of rainfall and splitting

raindrops into many tiny droplets which soak into the soil instead of pounding it hard and flowing away in rivulets. Late spring cultivation of peach orchards is necessary to check the growth of cover crops and weeds which may use moisture and plant food needed by the trees.

GRAPES

N. Y. Grape Crop Small But Enthusiasm is High

As the vintage season ended in the famous Chautauqua grape belt of New York State, growers and vineyard workers are tremendously enthusiastic even though the total crop is only 15,000 tons compared with the normal 40,000 tons. Under the new grower-ownership plan sponsored by The Welch Grape Juice Company, farmers' grape prices are $127 per ton. In former years they received around $85 a ton. Additional payments will further increase their income. This, together with the modernization of processing plants and plans for expansion, assures a new prosperity to the entire grape-growing industry.

The fact that a bumper grape crop almost always follows a lean year is another reason for rejoicing, and the people of the grape belt are already perfecting plans for a mammoth and spectacular Vintage Festival in 1946. They expect to invite celebrities from all over the country, including the President of the United States. They feel that the new program which is lifting up a whole region merits nationwide attention, particularly since the Welch Company plans expansion into small fruits, berries, tomatoes, and other crops.

QUINCE

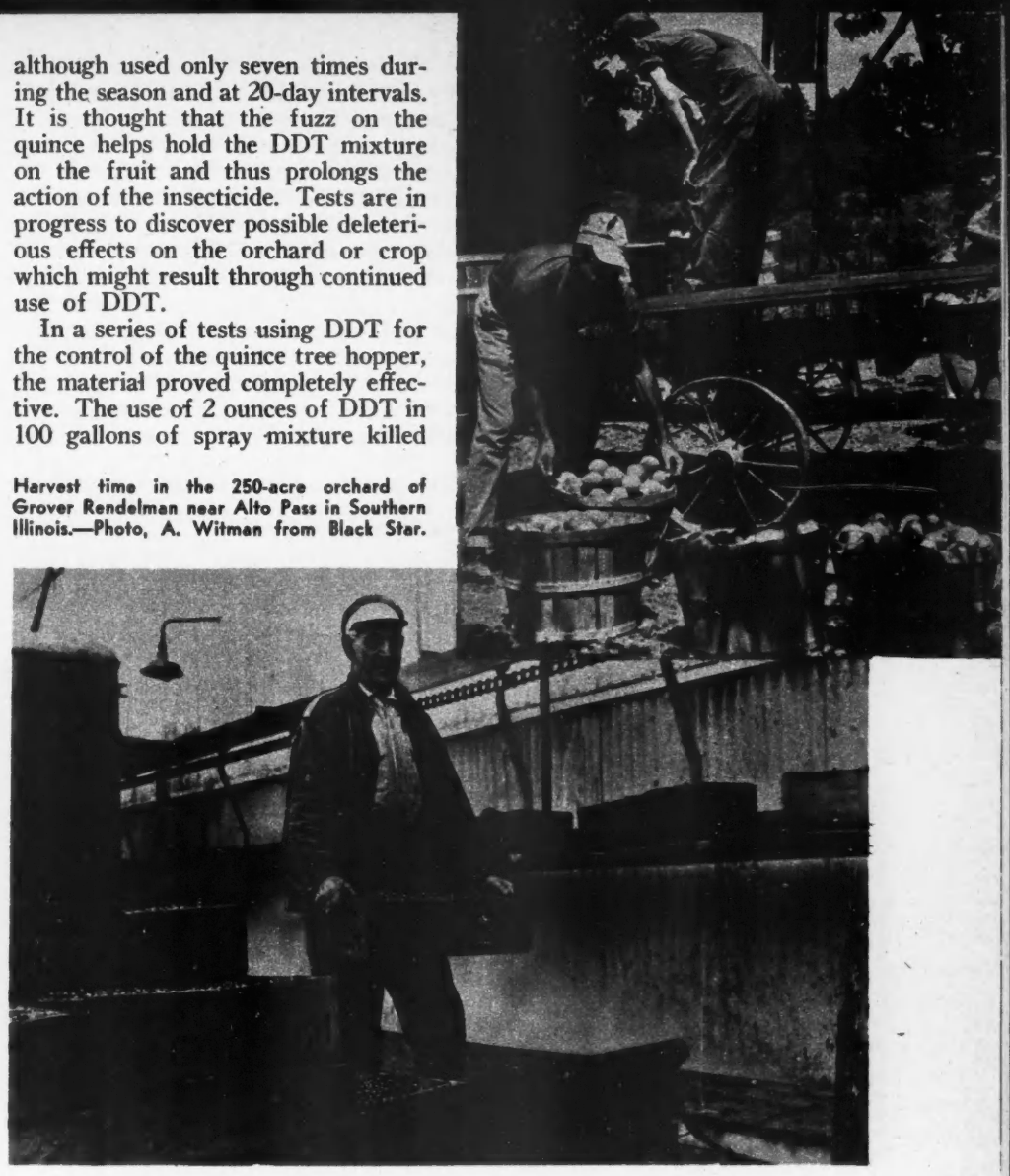
Pests Yield to DDT

Two major insect pests of quinces, the oriental fruit moth and the quince tree hopper, may be readily controlled by applications of DDT in the light of experiments reported by Prof. Ellsworth H. Wheeler of the State Experiment Station at Geneva, New York.

The oriental fruit moth has become a serious pest of quinces in western New York, and standard spray programs involving the use of various combinations of lead arsenate, oils and nicotine have failed to control the pest satisfactorily, even though ten or more applications of the spray materials were made at 10-day intervals.

In tests carried on in commercial quince orchards, DDT at the rate of 1 pound to 100 gallons of spray mixture gave almost perfect control, although used only seven times during the season and at 20-day intervals. It is thought that the fuzz on the quince helps hold the DDT mixture on the fruit and thus prolongs the action of the insecticide. Tests are in progress to discover possible deleterious effects on the orchard or crop which might result through continued use of DDT.

In a series of tests using DDT for the control of the quince tree hopper, the material proved completely effective. The use of 2 ounces of DDT in 100 gallons of spray mixture killed all the adults present in the sprayed trees. Where the dosage was increased to 12 and 16 ounces per 100 gallons, dying hoppers could be found under the trees from 10 to 20 days after treatment due to the long lasting effects of the DDT. It is believed that DDT will make it possible for a quince grower to eliminate this pest from his plantings.



Harvest time in the 250-acre orchard of Grover Rendelman near Alto Pass in Southern Illinois.—Photo, A. Witman from Black Star.

Under the new grower-ownership plan sponsored by The Welch Grape Juice Company, growers in the Chautauqua grape belt of New York State received $127 per ton for grapes.

STRAWBERRIES

Fertilizers and Cultural Treatments

A considerable change in the cultural methods of strawberries has resulted in Arkansas because of a series of experiments running from 1928 to 1943 which covered the study of the effects of fertilizers and cultural treatments on strawberries.

Previous to the findings of these experiments, Arkansas growers believed that strawberries could be grown only on newly cleared land. In tests conducted by J. R. Cooper and J. E. Vaile of the Department of Horticulture and Forestry of the Arkansas Agricultural Experiment Station, the productivity of the old soil was built up by the use of fertilizers and organic matter, until it proved to be just as high as that of the best newly cleared soils.

Fertilizers were found to be most valuable on bearing strawberry fields during two critical periods in the year: in early February preceding the bearing season to encourage plant growth and full development of flowers and the setting and development of the berries, and after harvest to encourage the production of new plants and the initiation of flowers for the following crop.

Also an important factor in strawberry production was the amount of organic matter in the soil. Annual applications of manure were found to be profitable on fine sandy loam, and this, along with the turning under of green crops before the plants were set, greatly increased productivity.

APS

A PAGE CONDUCTED IN THE INTERESTS OF THE AMERICAN POMOLOGICAL SOCIETY

ANNUAL MEETING HELD AT CHICAGO

ON October 6, officers and members of the American Pomological Society met at the Blackstone Hotel for the purpose of transacting the necessary business of the society. Prior to the meeting, President Johnston and the Board of Managers had decided against holding an annual meeting in joint session with a state horticultural society because of travel conditions. President Johnston called the officers together for pertinent discussions, and an all day session on October 6 brought some very important matters to a head in addition to hearing the reports of the several standing committees.

Foremost among items considered was that of the new variety situation. John T. Bregger, Clemson, South Carolina, Chairman of the New Variety Appraisal Committee, outlined the proposed variety survey. Bregger stated the problem and sized the situation up as follows:

Nurserymen are keenly alert about the new variety situation. Nurserymen supply the fruit industry with the trees and plants which produce the fruit needed in a hungry world. Nurserymen know the significance and the value of those new varieties that come along once in awhile to make horticulture history and give the introducer new prestige.

During the past twenty-five years, nearly ten thousand new varieties have been listed by the Committee on New Fruits and Nuts of the American Pomological Society. More than a thousand apples were listed during this time and nearly as many peaches, and the end is not yet. The quest for better and more regularly productive varieties in all fields of horticulture will not end until the industry is rid of those varities which have troublesome defects in the tree and in the fruit. Many states and federal agencies and amateurs are engaged in extensive research breeding programs. Scores and hundreds of new varieties have always been introduced for trial by the fruit, vegetable, and flower breeders. Uncounted numbers of new sorts still under test, are in many cases ready for introduction in the near future.

The tremendous number of new fruit varieties poses as a problem for nurserymen and horticulturists alike. In the early days, a jumbled variety situation dominated the fruit business. The American Pomological Society was organized to study the variety problem and for years did a truly magnificent job. The A.P.S. proposes to again step into the variety question. As was reported in this column earlier this year, Mr. John T. Bregger, well-known horticulturist and soil conservation expert, was appointed by Stanley Johnston, president of the A.P.S. to head up a new Variety Appraisal Committee. Bregger pointed out that to appraise new varieties and to sort the good from the bad was a job which required a good deal of help and cooperation. He has taken time out to organize the committee and to formulate a plan of procedure. The American Nurseryman Association has come into the picture to assist in the project and will provide a substantial sum of money to assist the A.P.S. and Bregger's Committee to do the job. This Variety Appraisal work promises to be one of the most significant projects which the A.P.S. has undertaken since the spray residue problem was settled.

For some years, the Committee on the Code of Nomenclature headed by Dr. M. J. Dorsey has strongly recommended that a system of registration be organized and maintained to assist the fruit industry in properly recording new variety introductions with a complete history and description of each new variety listed for introduction. In order to have such a registration bureau properly organized and maintained, it was the considered opinion of the committee that the United States Department of Agriculture was the proper place in which the responsibility for this work should repose. The following resolution was offered by Dr. H. B. Tukey. The vote was unanimous.

Resolution

WHEREAS there is an urgent need for an available, reliable, up-to-date detailed description and historical record of fruit varieties, especially new varieties as they appear, and WHEREAS the matter is of national interest and of great importance to fruit growers, fruit handlers, nurserymen, amateur and professional horticulturists, and plant breeders and originators of new varieties, BE IT RESOLVED that the American Pomological Society in session at its annual meeting in Chicago, Illinois, October 6, 1945, respectfully urges upon the Federal Government that the importance and urgency of this problem be recognized and that funds be appropriated to carry on the work in sufficient magnitude and scope to effectively satisfy the need.

Dr. J. H. Gourley, Head of Department of Horticulture, Ohio State University, Columbus, voiced the opinion that it was now time to think about reviving interest in holding a national fruit show. It has been a long time since there has been a really all inclusive fruit show in America. It was thought desirable that all branches of the fruit industry be represented, citrus as well as the deciduous fruits. Such a show, staged right, in the opinion of many would be of tremendous value to the fruit industry. Inasmuch as 1948 marks the hundredth anniversary of the birth of the A.P.S., it was suggested that 1948 could be considered an appropriate time for a great show and centennial celebration. That date will give ample time to round up horticultural interests and promote a fruit show of sufficient size to truely represent the industry.

Dr. Gourley moved, and he was seconded by Dr. Tukey that President Johnston appoint a committee to study the whole question of organization, site, date, and finances needed to hold a national centennial celebration fruit exposition. The committee as named by President Johnston is as follows: J. H. Gourley, Chairman, M. J. Dorsey, Paul Stark, H. J. Rahmlow, George R. Leonard, and H. B. Tukey.

H. L. Lantz
Secretary

THOMAS J. MANEY

Horticulture lost a fine gentleman, tireless research worker, and great teacher with the untimely passing of Tom Maney who died at Rochester, Minnesota on October 12 following an operation.

Head of the Pomology Subsection of the Iowa Agricultural Experiment Station, Maney was active in all of the fruit improvement projects of the experiment station. His influence in achieving a better horticulture reached to the far corners. He had friends everywhere in all branches of horticulture who respected him for his good judgment, wisdom, and never failing good humor.

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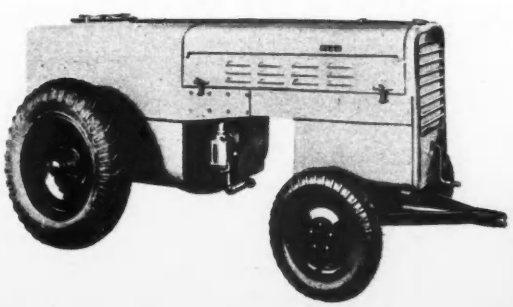

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STATE NEWS

CONNECTICUT—The annual meeting of the Connecticut Pomological Society will be held at Hotel Bond, Hartford, Connecticut on December 11 and 12. The topics for discussion include such items as production practices with special reference to culture and pruning; marketing as affected by the export situation, apple processing developments, the work of the apple institutes and the more careful handling of fruit. A half-day will be spent on the latest developments in insect and disease control including possible new spray materials.

With only about one-third of a normal apple crop this year, Connecticut fruit growers have found it almost necessary to ration their fruit to prospective buyers. There has been a keen demand for all grades of apples, including fruit that was badly russeted as a result of weather conditions during the early season.—*H. A. Rollins, Head of Plant Industries, University of Connecticut, Storrs.*

ILLINOIS—The apple packing season is just about over here. There are only a few growers who haven't finished their packing. Most of the orchards turned out better than expected on account of the large size of the apples. This, of course, was due to the 11 inches of rain that we had in September. We had almost three weeks of rainy weather which delayed the picking and consequently many apples went to the ground. However, growers realized good prices on their apples and there was always somebody to buy whatever you had at a good price. Adams, Pike and Calhoun county had more apples than they did last year and the state as a whole also had more apples and peaches than last year. We have had several killing frosts in this territory which should put our trees in good shape for the winter season.—*C. C. Mast, Secretary, Illinois State Horticultural Society, Quincy.*

MAINE—An agricultural trade show will be held in Lewistown on January 22, 23, and 24, at which time the annual meeting of the Pomological Society will also be held. Program will include a panel discussion on setting and developing an apple orchard, led by A. K. Gardner, and a talk on new insecticides and their possibilities in orchards, by F. H. Lathrop. Mr. Gardner is Commissioner of Agriculture and Dr. Lathrop is Entomologist at the Maine Station—*J. H. Waring, Professor of Horticulture, Orono.*

NEW HAMPSHIRE—The annual meeting of the New Hampshire Horticultural Society, with a two-day speaking program, will be held at the Carpenter Hotel on January 29 and 30. Because many growers were still busy with their apples in mid-November, the Executive Committee of the Society decided that a later date for the annual meeting would be more convenient for the members. Plans call for the usual list of able out-of-state speakers and the tradesmen will be in attendance with displays of equipment and materials. The annual banquet will be a feature of the meeting.

Most apple growers reported even fewer apples harvested than they expected during the pre-harvest season. Although the size was good on the whole, it did not make up for the lack of set to the extent expected. The quality of fruit was none too good on the average, although orchards which had unusually good care turned out the best fruit, as might be expected. Orchardists now are wondering whether next year may not bring the largest crop on record. Some growers feel, however, that the orchards which were neglected this year because of the short crop may not come through with a good bloom because of early defoliation from disease.—*A. L. French, Secretary, N. H. Horticultural Society.*

OHIO—The Ohio State Horticultural Society is planning its annual Winter Meeting for fruit growers at the Netherland Plaza Hotel, Cincinnati, February 6 and 7, 1946. This meeting will present a program of interest to the production and marketing problems of both tree fruits and small fruit growers, with the emphasis on apples, peaches, strawberries and small fruits.

Commercial exhibitors will set up a fine display of supplies and equipment of interest to fruit growers on the same floor as the auditorium where the meetings will be arranged.

A special school for fruit growers is being arranged by the Ohio State University, Department of Horticulture, at the Horticulture Building, Ohio State University, for the week of December 3. The program is not yet fully developed but can be sent, together with further information on the school, by writing Dr. J. H. Gourley, Chief, Department of Horticulture, Ohio State University, Columbus. This school uses both lectures and laboratory periods to acquaint fruit growers with developments with research as to how it relates to improving fruit production and marketing. It gives excellent opportunity to get acquainted with the developments of interest to fruit growers both in Ohio and elsewhere.—*Frank H. Beach, Secretary, Ohio State Horticultural Society, Columbus.*

MARYLAND—This has been one of those seasons you read about but seldom see. In peach season, with a short crop and impossible harvest weather, some growers turned customers loose in the orchard to pick fruit off the trees or ground to save it from brown rot. The crop was short, demand heavy, and prices excellent in spite of sugar shortage. The apple crop was very short and general quality was below standard. There was heavy demand for anything that the trees produced. The harvest was early and in some cases, customers waited in line for culls fit to make into apple butter.

Knowing that labor would be short next spring, many growers have applied complete fertilizer applications this fall, instead of the usual fall and spring split applications.

Labor shortage for next season has the growers worried unless some miracle occurs. Farmers are planning to reduce their acreage to fit their labor supply, but you can't "shut down" an orchard. Even chopping down adds to the labor demand. This may be the time to use a bulldozer on poor blocks and work up the trees into sizes that may burn easily.

One Maryland grower had an unusual crop of about 80,000 bushels of apples on a 300 acre mountain-top orchard. A few DDT sprays seemed to control codling moth almost perfectly, and a harvest dust to control dropping was applied by airplane.—*A. F. Vierheller, Secretary, Maryland State Horticultural Society, College Park.*

LESSONS IN ORCHARD CHEMISTRY

By E. D. WITMAN, Research Associate
Ohio State University Research Foundation

In this fourth of a series of articles on spray materials, Dr. E. D. Witman, Research Associate, Ohio State University Research Foundation, discusses source and use of oils and oil emulsions. The fruit grower of today may look upon the oil spray as a fairly new development—and in many ways it is—but the earliest use of an oil for the purpose of insect control goes back more than 150 years. The importance of oil sprays is indicated by the quantity used. In the United States, the annual consumption of Petroleum Oils in spraying is 75,000,000 gallons; of Pine Oils, 1,400,000 gallons—and these figures are on the upgrade.—Editors.

OILS AND OIL EMULSIONS

Oils from two separate sources are of interest to the horticulturist. Those from petroleum and coal and those from animals, fish, and plants.

The oils from coal are mixtures of chemicals which are somewhat like carbolic acid. They are, therefore, quite toxic to plants and animals and are usually used only in dormant treatments.

The oils from petroleum are complex mixtures of a class of chemical compounds called "hydrocarbons." The hydrocarbons may be "saturated" or "unsaturated," "ring" or "chain" compounds. They are insoluble in and lighter than water and are generally used as emulsions, i.e., the oils are dispersed in water as tiny drops whose surfaces are covered by an "emulsifying agent."

The character of petroleum oils is measured by the gravity or density, the viscosity, the unsulfonatable residue (the amount of "saturated" oil) and other less important constants. The more highly refined oils are less toxic to both plants and insects and it is preferable to use the unrefined oils in the dormant and the highly refined oils in summer spraying. Oils are widely used to kill scales, and to some extent red spider, and codling moth eggs. The actual mode of killing is not known exactly, but is probably a combination of penetration, suffocation and tissue corrosion. Oils usually lower transpiration and photosynthesis of plants, and injury results when too high dosages are applied.

The oils from fish and plants are most important today in horticulture as a source of soaps for emulsifying, spreading, and sticking of various insecticides and fungicides. They are distinctly different from the petroleum oils in that they are "glycerides."

PRICE CEILINGS

(Continued from page 9)

that established before the war.

John Chandler of the National Apple Institute offers some words of wisdom on the subject. "The combination of ceiling prices and excessive demand at these prices has penalized grading, attractive packaging, and the type of merchandising which carries consumer appeal, with the result that the industry has lost the consumer confidence which it had been gradually building up over the past twenty years.

"It is hardly necessary for me to point out that without separate ceilings for various grades and sizes of apples, no premium was offered for the best packs and therefore, to realize the greatest returns, growers and packers made up combination packs which included the lower grades to the extent that the combination would sell at ceiling. This procedure was considered practically mandatory because the ban on tie-in sales made it unlawful to require a buyer to purchase so many packages of the lower grades at the ceiling in order to get a supply of fancy or extra fancy fruit. Therefore, by lumping them together all apples could often be sold at the ceiling without violating the O.P.A. regulations.

"On the few occasions when any fruits were in abundance and sold cheap at the grower level, it was discovered that the large supply did not move readily, apparently because the distributors, both wholesale and retail, were inclined to take the full margin with the result that fruits which should have been cheap often cost the consumer the full allowable ceiling price. This, of course, slowed movement at a time when low prices and heavy consumption would normally occur."

Paul S. Armstrong, General Manager of the California Fruit Growers Exchange, presents this picture —"Price ceilings on perishables distort customary marketing practices and, by restricting the price that can be paid for preferred quality when the demand is strong, tend to level out prices irrespective of grade, size and condition. This has been demoralizing to sound handling and merchandising practices because it removes much of the incentive for good careful work."

Sounding out further comments upon price regulations, Porter Taylor, General Manager of the Cooperative Fruit and Vegetable Association says, "Probably the most important single effect of price regula-

(Continued on page 20)

PRICE CEILINGS

(Continued from page 19)

tions is the very serious damage which has been done to the fruit industry in the breakdown of the grading and standardization which has been accomplished over the previous twenty years. While growers cannot be criticized for reducing the quality of the products which they were placing on the market when the price they could receive was limited by government regulation, they should not forget that in the future, grade, pack and quality will again be the determining factor in establishment of premiums above prevailing market level . . ."

International Apple Association's Secretary, Samuel Fraser, has this comment to make:

"In the case of apples, in 1942-1943 the industry did a good job in keeping supplies moving at very reasonable prices. The tail-end of the season, in the early summer of 1943 the Army and Navy buying agencies went into competition with each other for certain supplies and bid the price up on the supplies left, a small percentage of the crop. This was cited as showing need for price control. Price control came into operation on the 1943-1944 crop, coupled with a short crop and a wretchedly drawn regulation.

"In 1944-1945 crop production was larger, price control regulations were changed and in parts of the country certain marks and sizes reached ceiling, and under any consideration of the problem from an economic angle, the ceiling was too low for the top grades and varieties. So grade standards suffered and proper care in production, packing and marketing was not encouraged by providing a compensatory price. The bulk of the crop sold below ceiling. Local pricing agencies came into power and certain sections of the country found that the Price Control Act basis of fixing a price which reflected parity, could be set aside by local retail pricing agencies. In some sections the Retail Pricing Agency of O.P.A. set prices which returned to the grower of that area less than the prices of U.S. No. 1 Canner grade. And growers in such areas, in order to get returns on cost were forced to ship to markets where the ceiling plus freight might be used in establishing the retail price. At a time when we were asked to not use rails the action of O.P.A. forced us to ship if we were to secure a compensatory price. The end results are:

"1. Production, preparing for market and packing of high class fruit have been most seriously dis-

couraged. It will take years to overcome this set back.

"2. Black markets have been an important factor in forcing the public to pay more than ceiling prices, and prices quoted are not a record of the prices paid.

"3. Those particular individuals who had to work on an Industry Committee had their thinking facilities stimulated. They were taught to use a sharp pencil and those who aided got training in these lines.

"4. The reduction in types of containers brought about by O.P.A. regulations may aid in further standardization of packages. Whether any benefits compensate for the handicaps is for the individual to decide."

In plain terms, Carroll R. Miller, Secretary of Appalachian Apple Service and the National Peach Council, gives us another slant upon the effects of price control. He thinks that, "The main effect of price regulations has been to keep the Growers' profits lower than they would have been. Whether this is injurious or beneficial to the industry is open for discussion.

"Price regulations tended strongly to remove the incentive to pack well. With a fixed top price, the tendency was to simply throw the fruit at the package. Not many growers had the courage and judgment to maintain their pack standards. We know one grower, receiving $3.85 for his apples, who refused to put oiled paper in the pack. He could sell them without. But, under war-time demand, much of that would have happened without ceilings.

"One season will cure that. A big crop season when punk packs rot and only the attractive, honest packs move. Rotten apples are very educational.

"Controls reduced the growers' profits. Some growers were injured thereby; still lack funds to properly equip their operations. More were unable to build up a sufficient reserve to tide them over possible bad years ahead. We seem to move on the bacon plan;—a streak of fat and a streak of lean. Too-lean bacon isn't good. But neither is too-fat bacon. If we must choose, we prefer it too lean. So . . . our guess is that price controls won't leave visible marks on the fruit industry. But they certainly are messy and bothersome . . ."

Credit is extended to the following persons and organizations for the photographs appearing on page 9: apple box, First National Stores, Inc.; orange box, California Fruit Growers Exchange; apple basket, Frank Ross, House Springs, Mo.; orange basket, Kaufmann-Fabry.

CITRUS PROPAGATION

(Continued from page 12)

Budding is done at either of two seasons. One of these is in spring as soon as the bark will slip after the dormant winter season, the other is early in autumn before growth in the stocks stops and the bark tightens. The latter is the preferred time and is often referred to as "dormant budding." For spring budding, the budwood is cut during the winter dormant season and stored until needed, while for autumn budding the budwood is cut and used immediately.

Citrus trees are seldom propagated by grafting, instead they are propagated by budding and the method used is commonly called "Inverted Budding." The cross cut is made at the bottom and the bud is shoved up into the slit. In advance of budding, the stocks are trimmed and poor ones are cut out. Buds are tied in place with narrow strips of waxed cloth prepared by cooking rolls of cloth about six inches long and two inches thick in a mixture of resin, one pound; beeswax, four pounds; and three tablespoonfuls of raw pine gum. These materials are melted first and the rolls of cloth then dropped in and cooked until the liquid wax has penetrated all the way through. For use, the cloth is torn in strips about three-eighths of an inch wide and six to eight inches long depending on the diameter of the stocks. The buds are inserted close to the ground and completely wrapped. It is best to cut buds of good length and substance. Union of bud and stock takes place in two weeks or so under favorable conditions.

At the proper time, the stocks are cut off just above the buds. Dormant budded stocks are cut off in spring when or just before top growth starts, while spring budded stocks are cut off as soon as the buds are well united. A stake is set at each stock to which the shoot growth from the bud is tied three or four times as it grows upward to keep it straight and protect it from being injured or broken off. All sprouts are removed from the stock below the bud, fertilizer is applied and the young trees are kept in active growth throughout the season. When the young tree has reached the top, a stake thirty inches or so in height above ground, it is cut off to induce branching. Citrus trees are sold both by caliper and age. One season's growth from budding will give trees one-half to three-quarters of an inch caliper. One, two and three year old trees are handled and it may be noted that the root system is at least two and more often three years older than the top. This makes for earlier fruiting

TOEING THE MARK

(Continued from page 13)

worm "entrances."

In a search for the usual high scoring orchards, the entomologist was not disappointed entirely, for some exceptionally clean crops were found.

Six of these orchards are here described with the percentage of clean fruit found present at the time of the orchard visit. As in former years, only orchards 14 years of age, or over were visited and all of the commercial apple varieties present checked for blemishes. Not less than 2,000 fruits were inspected individually and the blemishes tabulated.

The 35 acre orchard of Ralph Ladd, Athens County, which takes first place this year with a score of 97.38% clean fruit, occupied third place in 1944 with a score of 99.26%. The crop in this orchard in 1944 yielded about 12,000 bushels, while this year only 2,500 bushels were harvested. The varieties checked were: Golden Delicious, Red Delicious, Jonathan and Rome Beauty. Outstanding control of apple scab was secured, for less than 1% of the fruits were blemished by that disease. The materials used for apple scab control were: liquid lime-sulfur in the prepink application, followed by two more preblossom sprays of wettable sulfur, and four post-blossom sprays all carrying wettable sulfur and lead arsenate. Mr. Ladd shares with his sister credit for the excellent performance of this orchard in growing clean fruit since we have been scoring the Ohio orchards.

The orchard of Russell Perry (96.42%) near Cambridge, Guernsey County, is a new one in the "select" group this year. The trees wander over three hillsides with soil too poor to grow good crops of grain, or pasture. Mr. Perry has given this orchard good care for several years with the result that it is now at the "peak" of performance. The fruit had the best color and finish of any orchard visited this year. The size was all that could be expected considering the poor soil and the drouth which came late in the summer. His spray program consisted of three preblossom sprays of liquid lime-sulfur, followed by wettable sulfur throughout the remainder of the season. Lead arsenate, lime and zinc sulfate were included in all applications following the 10-day spray. We believe that much credit must be given zinc sulfate for the excellent finish and fine foliage.

Ernest Holdren (95.60%) of Little Hocking, Ohio, and his son did all the spraying of their mature

TOEING THE MARK

(Continued from page 23)

orchard of about 30 acres at the western edge of Washington County. They used a Speed sprayer. The Speed sprayer was slowed down to cover the trees thoroughly, and in the opinion of Mr. Holdren this sprayer greatly lightened the burden of spraying. This orchard has never had a worm problem, but had late defoliation from bordeaux sprays in previous years. This year no bordeaux mixture was applied. Wettable sulfur, 3 lbs. of lead arsenate and 3 lbs. of lime were used in all of the sprays applied after bloom. No zinc sulfate was used with the summer sprays and some arsenical burn occurred to foliage. This was not nearly as serious as the bordeaux injury of previous years.

But one preblossom spray was applied for apple scab control using 2 gallons of liquid lime-sulfur per 100 gallons of spray in the pink application. Only 3.61% of the apples carried scab marks, and 0.54% worm stings. Many other orchards that received but one preblossom spray were not so fortunate in scab control.

The 18 acre Buechler Brothers' (95.38%) orchard is located south of Madison, Ohio, in Lake County and on gently sloping land from which Lake Erie can be plainly seen on a clear day. The soil is low in fertility. The orchard consists of 24 year old trees. This orchard is but two years out of "neglect" during which time it was over-run for several years with apple scab and cankerworms—much of the foliage being destroyed during the growing season by these pests. The Buechler Brothers (Everett, Harold and Paul) were formerly vegetable growers and have also been engaged in building cabin boats for use on Lake Erie. When they acquired the 18 acre orchard, two years ago, they transferred their interest to fruit growing and in two years have brought the orchard into an excellent stage of production. About five of the 23 acres of trees were retained by the original owner, and in order to protect their orchard the Buechler Brothers sprayed this adjoining five acres to prevent the spread of pests to their own trees. They were successful this year in growing good fruit on unpruned trees in these five acres by spraying alone. The apple crop in their own orchard was protected from scab almost entirely by wettable sulfur, although one gallon of liquid lime-sulfur to a 400 gallon tank was added to the recommended amount of wettable sulfur in the first preblossom spray. Thereafter through-

out the season they followed the recommendations carried in the fruit spray service letters.

The name of Emery Leow (92.50%) occurs frequently in the "clean fruit honor list." He lives about 1½ miles south of Oak Harbor, Ottawa County. Mr. Leow and his 18 year old son care for an 80 acre farm having 17 acres of 15 and 30 year old apple trees. The crop in the young orchard was lost by frost, but the old trees came through with about 15% of a crop of nice fruit on a few varieties. Blemishes were equally divided between scab and worm stings. No dormant spray was applied. Two preblossom sprays of two gallons of liquid lime-sulfur per 100 were applied in the prepink and pink stages. Wettable sulfur and lead arsenate were used in the calyx and in all six of the cover sprays—the last being applied August 8th. Mr. Leow is very thorough in his spray applications, and his fruit has ranked high during the 16 years we have been checking his spray results.

Otto Balduf (92.20%) near Camp Perry, Ottawa County, brought his 1945 crop of apples to its degree of perfection the hard way. Mr. Balduf applied 13½ sprays to this orchard, which two years ago had been rather badly infested with codling moth. His 4½ acre orchard consists of 18 and 20 year old trees. The size of the Golden Delicious apples was such that it took only 100 apples to make a bushel. Almost all of the blemishes found were caused by the codling moth. Remarkable as it may seem, not a single scab spot was found on the fruits examined in this orchard this year. In harvesting his McIntosh, Mr. Balduf stated that not a single scabby apple was found. Such an accomplishment in a spray season like 1945 may be difficult for many of our Ohio apple growers to understand. However, had they carried the spray gun, as did Mr. Balduf throughout the 13½ spray applications, it might not be difficult to understand.

The orchard received a dormant oil spray, followed by 3½ applications of liquid lime-sulfur before bloom; a mixture of lime-sulfur and wettable sulfur plus 3 lbs. of lead arsenate in the calyx and 10-day sprays; this was followed by 7 cover sprays of wettable sulfur and lead arsenate. No lime, or zinc sulfate was used in this orchard.

Mr. Balduf's orchard is located within a stone's throw of Lake Erie, where spraying "with the wind" usually is the only way by which the trees can be covered. This accounts for the "half spray," which means the wind did not change direction in time to complete the application.

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Calendar of Coming MEETINGS and EXHIBITS

(Continued from page 7)

Jan. 30-Feb. 1.—Eastern Meeting of the New York State Horticultural Society at Kingston.—Roy P. McPherson, Sec'y, Le Roy.

Feb. 4-5—Nebraska State Horticultural Society Annual Meeting.—E. H. Hoppert, Sec'y Lincoln.

Feb. 6-7—The Annual Meeting of the Ohio State Horticultural Society will be held at the Netherland Plaza Hotel, Cincinnati.—Frank H. Beach, Sec'y, Columbus.

Feb. 7-8—Seventy-Ninth Annual Meeting of the Kansas State Horticultural Society at Kansas State College, Manhattan.—Geo. W. Kinkead, Sec'y, Topeka.

Feb. 8-9—The 51st Annual Convention of the West Virginia State Horticultural Society at Martinsburg.—Carroll R. Miller, Sec'y, Martinsburg.

Feb. 20—The Rhode Island Fruit Growers Association will hold its annual meeting in connection with the Farm and Home Show being sponsored by the Rhode Island Agricultural Conference.—E. P. Christopher, Sec'y, Kingston.

LETTERS to the EDITOR

(Continued from page 7)

and egg money, in proportion to the energy and time expended, doesn't compare with boysenberry money. Berry culture can be the woman's share of farm production.
Bartlett, Tenn. Mary S. Smith

Taking its place among leaders of the bramble family, the Boysenberry is rapidly gaining in popularity. Having been distributed to nurseries in 1932, it is a comparatively new fruit from a triple cross involving loganberries, blackberries, and raspberries. The Boysenberry was bred by Rudolph Boysen, Superintendent of Parks of Anaheim, California, and its fine flavor and firm flesh coupled with the excellent appearance of the pack have created a consumer demand for them wherever they are grown and marketed.

USED AUTO PARTS

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WANTED TO BUY—100,000 Plants. Strawberries, Blackberries, Raspberries, Dewberries, Boysenberries, etc. HENRY JOHNSON, 800 Vine Street, Chattanooga, Tennessee.

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INTERNATIONAL HARVESTER SHOWS POSTWAR TRACTORS AND IMPLEMENTS

"Cub Tractor" and "Touch Control" Feature New Line

The Farmall Cub tractor, shown here with farm truck, provides the advantages of power farming for small acreages equal in economy with the advantages enjoyed by large-scale farmers.

WITH a great array of tractors and implements, each designed for a specific farm job, International Harvester showed farm paper editors at its Hinsdale Experimental Farm, Hinsdale, Illinois, its new postwar line of farm machinery.

Thirty-two tractors designed to do a large number of widely varying jobs in orchards, groves and fields comprise the power groups. For the small farm and orchard, International Harvester unveiled its Farmall Cub—a small and economical tractor weighing 1050 lbs. equipped with a 10 h.p. engine and able to pull a single 12-inch plow.

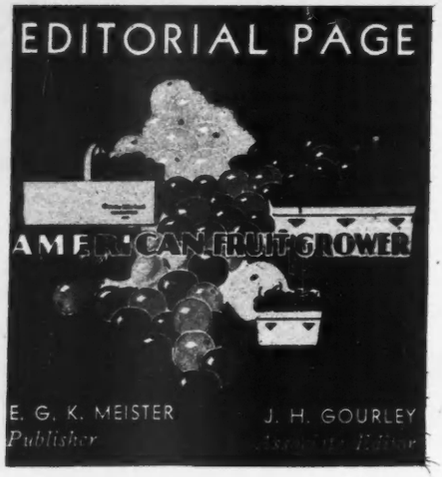
Small orchards which have all but been abandoned because tillage and insect and disease control require mechanical power will find the Farmall Cub an economical and efficient power unit.

"Touch control" of implements through a power actuating unit in the tractor is comfort and convenience every farmer has dreamed about. This system of regulating farm implements makes possible quick and easy attachment and detachment of tools; raising and lowering of both mounted and trailing tools by the touch of a finger on a small lever; and positive and precise control of penetration of tillage tools in the ground; has tremendous flexibility and with it the operator can perform practically any field operation.

Many International Harvester tractors, including the Farmall cub, and implements are equipped with "touch control" and there is no development in farm machinery which means so much to the grower in a saving of time and labor. Among the tools designed for "touch control" units are moldboard plow, disk plow, corn planter, combination planter and fertilizer, blackland planter, runner planter, middle buster, cultivator, beet puller, beet and bean cultivator, grain drill, mower and sweep rake.

The outstanding demonstration at Hinsdale was the new International Harvester mechanical cotton picker which actually picked cotton from a field brought up from the South and before the very eyes of the farm editors. In actual operation also was a new cut-off corn picker, a one-man pick-up hay baler and a side delivery rake. Demonstrated, too, were a self-propelled combine, spreader for fluid manure, sugar beet harvester, dry and green hay chopper and small hay baler. The home freezer which grew out of International Harvester milk cooling experience was unveiled at a special demonstration in one of the large tents and during the luncheon hour. A new line of farm motor trucks powered with International Harvester Green Diamond Engine completed the exhibit.

Operated by power-drive direct from the tractor, the hay baler picks up the hay from the windrow automatically, makes the bales, ties them securely, and delivers them to the rack.



DDT Residue Tolerance

IN ANTICIPATION of general use of DDT next season, and with the goal of adequate safeguarding of the public, the Food and Drug Administration has announced an informal tolerance of 7 milligrams of DDT residue on apples.

The Administration states that the toxicity of DDT is less than that of several other common insecticides and that it has many advantages over some insecticides that have long been in use—however, it is by no means harmless and does have toxic properties.

Since reports from the USDA research center at Beltsville show that it isn't simply a matter of washing off DDT residue, the control of DDT residue on apples is unlike the residue problem on other insecticides. So far, there has not been any method of removal devised that will not damage the apple.

Under the provisions of the Federal Food, Drug, and Cosmetic Act, DDT should not be used on food crops or in the storage, handling, or manufacture of food unless it is required. The Food and Drug Administration recommends that, "In determining whether or not DDT is required there should be taken into account the availability of insecticides that are less toxic than DDT."

Since safer insecticides such as the pyrethrins and rotenone are available for use on leafy vegetables, there is grave question concerning the propriety of the use of DDT on such crops. However, the Food and Drug Administration says that, "No question is raised concerning the use of DDT on such fruits as apples and pears since it is less toxic than the other commonly used insecticides for these crops, such as lead arsenate and cryolite. In any event, the quantity of DDT used should be held to the minimum reasonably necessary for protection."

In stating that "For the present the Food and Drug Administration will not take action against apples and pears containing not more than 7 milligrams of DDT per kilogram of fruit," the Administration points out that "The views expressed are subject to modification as additional facts may become available and controlling decisions are rendered by Federal Courts."

Welcome Back Truman Nold

AFTER ALMOST two years' service as P.F.C. Nold in the United States Army, Truman Nold is back again as Secretary of the National Apple Institute in Washington, D.C.

On January 1, 1943, with the country at war, Mr. Nold was given a leave of absence and became Secretary of the Fruit and Vegetable Committee of the United Nations. Then in January, 1944, he voluntarily gave up his deferment and was inducted into the United States Army.

After training in this country in various branches of the service, P.F.C. Nold went overseas in November, 1944, as an infantry replacement. As No. 2 man in a machine gun unit, P.F.C. Nold fought with the 12th Infantry Regiment under General Patton attacking the Siegfried Line during the Winter and Spring of 1945. V-E Day found his unit on the banks of the Danube.

Truman Nold returns to his former position as Secretary of the National Apple Institute to fight as brilliantly for the apple growers and shippers as he did on the Western Front. We welcome his return.

Merry Christmas

THE AGE-OLD greeting—"Merry Christmas"—will have a warm and spontaneous sound this year. "Peace on earth, good will toward men" loses its war mockery and becomes again the hopeful and idealistic relation which came with the birth of Christ.

Many families are being reunited for the first time in years. Many others are looking forward confidently to the return of sons and daughters from foreign shores. The feeling of peace and the hope of better days ahead, and an understanding friendship of one toward the other are the real Christmas spirit and the blessing of Christmastide.

At this time of the year when the heart kindles under the influence of gracious memories and when good wishes are exchanged between friends, and everyone tries to find a few minutes in a busy day to send forth the annual message of appreciation for the past and hope for the future, AMERICAN FRUIT GROWER sends its greeting to all its readers in all corners of our great fruit country.

Fruit Trees in Winter

WE ENTER the winter season. Most people in the North welcome the seasonal changes. Certain characteristics distinguish them sharply one from the other. But winter is especially marked because, to outside appearances, all activity ceases and the plant is asleep.

To the orchardist who is interested in plants, this winter rest has more than academic interest, for things are still happening and certain of the phenomena must affect his practices.

Deciduous trees, that is those that shed their leaves, have an inactive period. The early part of this period is characterized by a "rest period" which is so fixed that plants or plant parts will not respond to the most favorable growing conditions. If branches are cut and taken into a greenhouse, they remain in complete rest unless given special treatments to break the rest. But later, depending upon species and variety, the buds will start into growth when placed in a favorable environment. The reason they do not start into growth in the orchard is because the accumulative temperature is not sufficiently high. In 1945, we saw a response to unseasonable warm weather in March, only to rue it later.

In the Southland, these deciduous fruits must experience a certain degree of cold if they are to bloom normally. Chandler noted that if there are not at least two months during which the temperature averages below 48 degrees F., opening of the buds will be considerably delayed and they will open unevenly.

But plant organs and parts are active when outside appearances would belie it. Flower parts develop slowly within the bud even during winter weather at about 40 degrees F. or above. There is a progressive development of stamens and pistils during the warmer periods of winter so that by April or May the buds are ready to burst into matured blossoms.

Likewise the roots of fruit trees are active during at least part of the period when the trees are bare of leaves. There is an uptake of water and nutrients when the soil temperature is as low as 45 degrees F., at least. Nitrogen fertilizers applied in late autumn are absorbed and stored in the tissues. Likewise, water is given off from the twigs during winter, and trees that go into winter with a dry soil are more subject to winter injury than those in a moist medium.

Buds in winter are worth a special study, not only of fruit but of all trees. This is a paradise of the nature lover, but more of this another time.

Serving the Fruit Growers of the Nation

ANNUAL INDEX TO CONTENTS AMERICAN FRUIT GROWER

VOLUME 65—JANUARY THROUGH DECEMBER, 1945

Monthly from 1881 through 1945

AMERICAN FRUIT GROWER offers this annual index of all 1945 editorial material as a handy and useful reference for its readers.

Since the authors are leaders and recognized authorities in all phases of fruit growing, and the contents of their manuscripts include the latest developments in horticultural science, the reader will often want to turn again to back issues for reference and refreshment. This index should be particularly valuable to schools, colleges and experiment stations who frequently have occasion to refer to material in the pages of AMERICAN FRUIT GROWER.

To use the index, simply follow the alphabetical listing for your subject. The first figure after each listing is the issue number; the figure after the colon is the page number.—Editors.

ANNUAL INDEX TO CONTENTS

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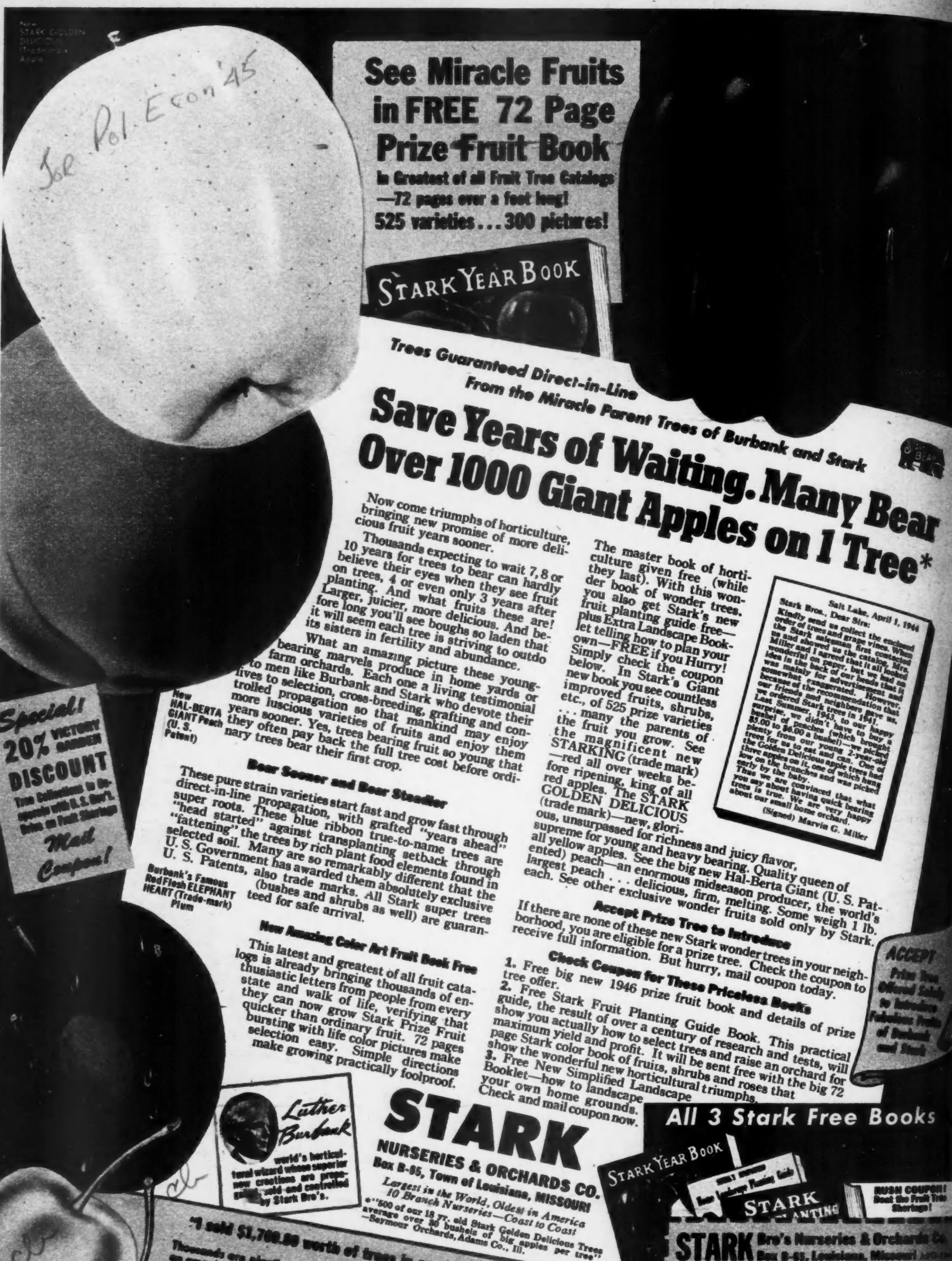
A STILL GREATER 100 HP V-8 ENGINE with NEW Ford steel-cored SILVALOY rod bearings, more enduring than ever in severe service • NEW aluminum alloy cam-ground pistons with 4 rings each, for oil economy • BIGGER, more efficient oil pump and IMPROVED rear bearing oil seal • NEW longer-lived valve springs • NEW improvements in cooling • NEW efficiency in ignition • in carburetion • in lubrication • Far-reaching ADVANCEMENTS in ease and economy of servicing operations.

IMPORTANT FORD CHASSIS ADVANTAGES: Easy accessibility for low-cost maintenance • Universal service facilities • Heavy-duty front axle • Extra-sturdy full-floating rear axle with pinion straddle-mounted on 3 large roller bearings • 3 axle ratios available • 2-speed axle available at extra cost • Powerful hydraulic brakes, exceptionally large cast drums • Long-lived needle bearing universal joints • Rugged 4-speed transmission with NEW internal reverse lock.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STARK YEAR BOOK
Trees Guaranteed Direct-in-Line From the Miracle Parent Trees of Burbank and Stark
Save Years of Waiting. Many Bear Over 1000 Giant Apples on 1 Tree*
Now come triumphs of horticulture, bringing new promise of more delicious fruit years sooner.
Thousands expecting to wait 7, 8 or 10 years for trees to bear can hardly believe their eyes when they see fruit on trees, 4 or even only 3 years after planting. And what fruits these are! Larger, juicier, more delicious. And before long you'll see boughs so laden that it will seem each tree is striving to outdo its sisters in fertility and abundance.
What an amazing picture these young-bearing marvels produce in home yards or farm orchards. Each one a living testimonial to men like Burbank and Stark who devote their lives to selection, cross-breeding, grafting and controlled propagation so that mankind may enjoy more luscious varieties of fruits and enjoy them years sooner. Yes, trees bearing fruit so young that they often pay back the full tree cost before ordinary trees bear their first crop.
Bear Sooner and Bear Steadier
These pure strain varieties start fast and grow fast through direct-in-line propagation, with grafted "years ahead" super roots. These blue ribbon true-to-name trees are "head started" against transplanting setback through "fattening" the trees by rich plant food elements found in selected soil. Many are so remarkably different that the U. S. Government has awarded them absolutely exclusive U. S. Patents, also trade marks. All Stark super trees (bushes and shrubs as well) are guaranteed for safe arrival.
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This latest and greatest of all fruit catalogs is already bringing thousands of enthusiastic letters from people from every state and walk of life, verifying that they can now grow Stark Prize Fruit quicker than ordinary fruit. 72 pages bursting with life color pictures make selection easy. Simple directions make growing practically foolproof.
The master book of horticulture given free (while they last). With this wonder book of wonder trees, you also get Stark's new fruit planting guide free—plus Extra Landscape Booklet telling how to plan your own—FREE if you Hurry! Simply check the coupon below. In Stark's Giant new book you see countless improved fruits, shrubs, etc., of 525 prize varieties . . . many the parents of the fruit you grow. See the magnificent new STARKING (trade mark)—red all over weeks before ripening, king of all red apples. The STARK GOLDEN DELICIOUS (trade mark)—new, glorious, unsurpassed for richness and juicy flavor, supreme for young and heavy bearing. Quality queen of all yellow apples. See the big new Hal-Berta Giant (U. S. Patented) peach—an enormous midseason producer, the world's largest peach . . . delicious, firm, melting. Some weigh 1 lb. each. See other exclusive wonder fruits sold only by Stark.
Salt Lake, April 1, 1944
Stark Bros., Dear Sirs:
Kindly send us collect the enclosed order of trees and grape vines. When the Stark salesman first contacted us and showed us the catalog, Mrs. Miller and I agreed that it all looked wonderful on paper, but we had an idea in the back of our heads that it was mainly for advertisement and somewhat exaggerated. However, because of the recommendation that our friends and neighbors gave us, we ordered Stark trees in 1941. Last Summer, 1943, to our happy surprise, we didn't have to buy a bushel of peaches (which brought $5.00 to $6.00 a bushel)—we picked plenty from our young 2-year-old trees for us to eat and can. One of the Golden Delicious apple trees had three apples on it, one of which hung low on the branches and was picked early by the baby.
Thus we are convinced that what you say about having quick bearing trees is true. We are very happy about our small home orchard.
(Signed) Marvin G. Miller
Accept Prize Tree to Introduce
If there are none of these new Stark wonder trees in your neighborhood, you are eligible for a prize tree. Check the coupon to receive full information. But hurry, mail coupon today.
Check Coupon for These Priceless Books
1. Free big new 1946 prize fruit book and details of prize tree offer.
2. Free Stark Fruit Planting Guide Book. This practical guide, the result of over a century of research and tests, will show you actually how to select trees and raise an orchard for maximum yield and profit. It will be sent free with the big 72 page Stark color book of fruits, shrubs and roses that show the wonderful new horticultural triumphs.
3. Free New Simplified Landscape Booklet—how to landscape your own home grounds.
Check and mail coupon now.
New HAL-BERTA GIANT Peach (U. S. Patent)
Burbank's Famous Red Flesh ELEPHANT HEART (Trade-mark) Plum
Special! 20% VICTORY GARDEN DISCOUNT
Mail Coupon!
ACCEPT
Luther Burbank
world's horticultural wizard whose superior new creations are propagated, sold and controlled by Stark Bro's.
STARK NURSERIES & ORCHARDS CO.
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Largest in the World, Oldest in America
10 Branch Nurseries—Coast to Coast
*"500 of our 18 yr. old Stark Golden Delicious Trees average over 30 bushels of big apples per tree" —Seymour Orchards, Adams Co., Ill.
"I sold $1,760.80 worth of trees in one week . . . spare time!"
Thousands are planting home orchards as urged by U. S. Gov't. This opens an amazing opportunity for men and women to make real money selling for Stark Bro's., America's biggest and oldest nursery. Rev. E. B. Eckerly, Indiana, sent in unusual sales of $1760.80 in one week. All over the country Stark representatives are making nice extra income selling exclusive patented varieties of Stark-Burbank trees. 130 years in business, 76 years of advertising, plus thousands of satisfied customers, have made Stark trees, shrubs and roses preferred the country over. No investment. No experience to start. Free outfit. Check coupon to get liberal weekly income plan. MAIL COUPON TODAY.
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STARK
RUSH COUPON! Beat the Fruit Tree Shortage!
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Box B-65, Louisiana, Missouri
Gentlemen: Send me Free: New, big 1946 PRIZE FRUIT BOOK and details of Prize tree offer.
Check here for Free Fruit Planting Guide.
Check here for Free Home Landscape Booklet.
Check here for Special Over 10 Tree Proposition.
Check here for Special Over 20 Tree Proposition.
Name
P. O.
St. or R. F. D.
State
Check here if interested in liberal Weekly Cash Income Plan for Spare-time selling Stark prize trees.